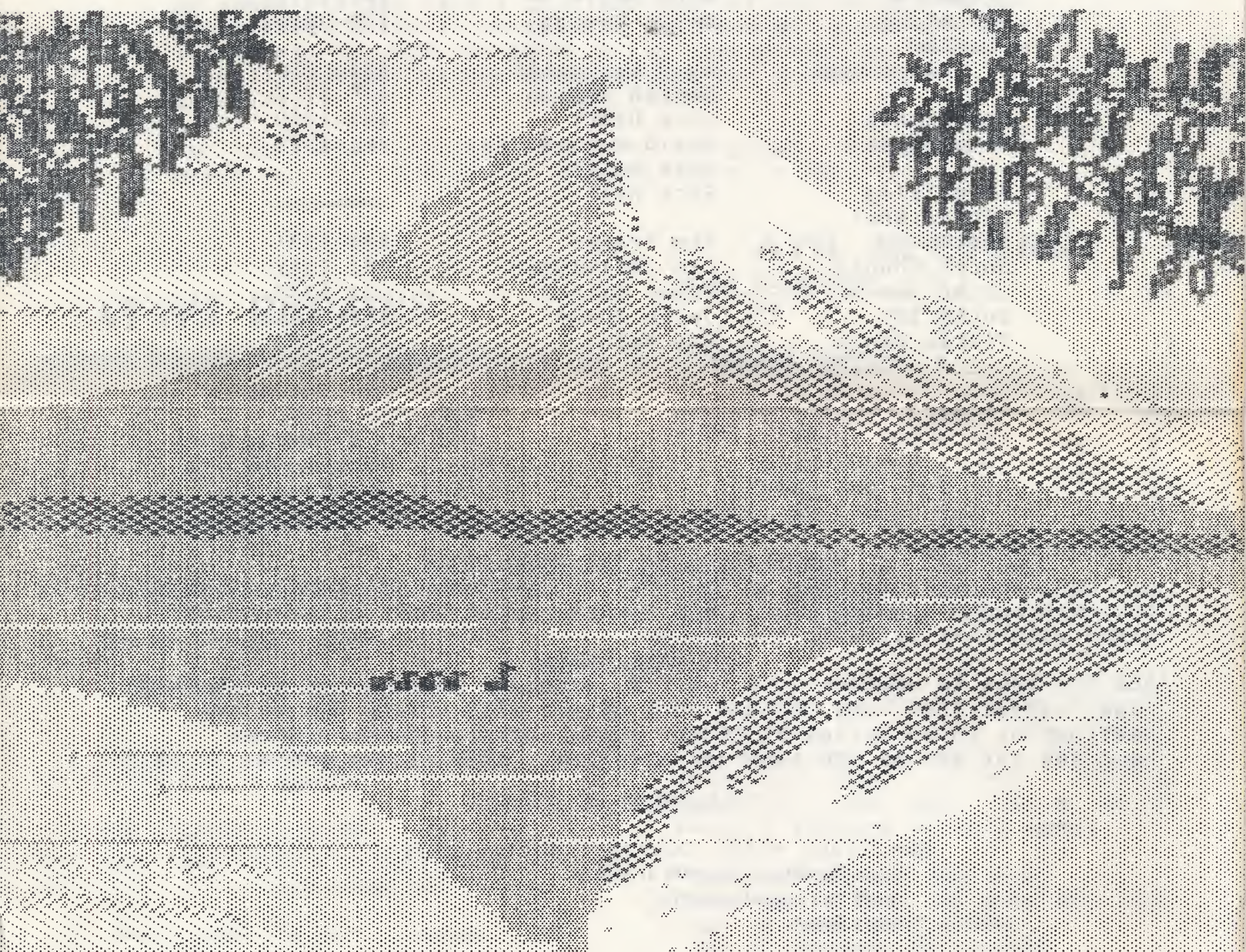




# The I/O Connector

JUNE 1986  
PRICE \$1.00

The Newsletter of the San Diego Atari Computer Enthusiasts





# SAN DIEGO ATARI COMPUTER ENTHUSIASTS

is an independent, non-profit organization and user group with no connection to the ATARI Corporation. Membership fees are currently \$15.00 annually, from January 1 thru December 31 of the current calendar year. Membership includes free access to the computer program library, subscription to the "I/O Connector", and classes when held. Permission to reprint articles in any non-commercial form is permitted with specific authorization, as long as proper credit is given.

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Sysop: Mark Booth  
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24 Hours

### SUBMISSIONS TO THE NEWSLETTER

are most welcome, and due by the 15th of the month for publication in the next month's newsletter. Mail double-spaced text or (returnable) disks with text files to the Editor.

### BUY/SELL/TRADE

ads are free to members of S.D.A.C.E. members. Ads must be 25 words or less, typewritten copy, please. The Editor will accept ads at the meetings or those mailed in to the above correspondence address. Deadline for ads is the same for articles - 15th of the month.

### CALENDAR OF EVENTS

San Diego ATARI Computer Enthusiasts  
First Thursday of the month at 6:30 pm  
North Park Recreation Center  
Adult Center

### ST SIG

Third Monday of the month at 6:30 pm  
North Park Recreation Center  
4044 Idaho Street  
Social Room

### San Diego Computer Society

Third Saturday of each month  
12 noon: swap meet  
1:30 pm: meeting  
Mesa College, Apollo Theatre



Next Meeting: 11 June

The ATR8000 Special Interest Group is changing both its meeting night and location. To match up better with the new Atari club meeting night, the new meeting night will be the Wednesday following the regular Atari club meeting. There will be no meeting the month of May. The next meeting will be June 11. The meeting will begin at 7:00pm at the home of Norm Davis, 9248 Ellenbee Road in Santee (see accompanying map).

If you have an interest in the ATR, CP/M, please feel free to come. If you have a CP/M application you would like to demonstrate, bring it along. If you have any questions about the Atari, the ATR, or CP/M, bring them along too; there is normally someone at the meeting that can answer your questions.

For additional information on the ATR group, you can call Brent Harritt at 562-6235 or Norm Davis at 448-2971.

## ATARI REPAIRS

410/800XL/800/800XL/810/820/850/1050/1200XL

### SSL ENTERPRIZES

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\*\*\*\*\*

### HOW TO OBTAIN LIBRARY DISKS

EFFECTIVE JUNE 1986

1) Library disks are available to all S.D.A.C.E. members.

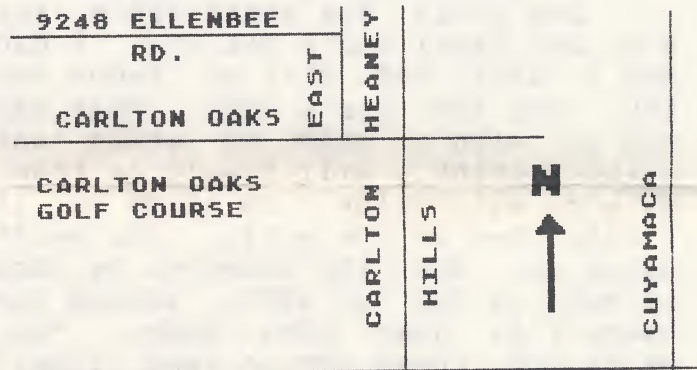
2) The charge is \$2.00. This will get you two library disks, one on each side of a club supplied floppy.

3) Give your order (money and number of the disk(s)) wanted to the librarian. Your disks will be available at the next meeting.

NOTE: If you are desperate and want your order in a hurry, leave your name, address, and an extra dollar for mailing, and your order will be mailed to you.

\*\*\*\*\*

## ATR MEETING



MEETING: MISSION GORGE  
7:00 PM WEDNESDAY AFTER ATARI CLUB  
MEETING PHONE 562-6235 FOR INFO

As a sysop, I find myself working on my BBS to clear out old passwords, validate new users, inspect new uploads, and, in general, keep things running smoothly. One day, while doing this, I thought of this poem:

MAY YOUR DRIVES RUN TRUE,  
AND YOUR BYTES, THE SAME WAY TOO,  
NOT TO MANY 'BAD USERS',  
AND NO ABUSERS OR LOSERS,  
MAY YOUR MEMBERS FOLLOW ORDERS,  
WITHOUT DISORDER,  
ALL OF THIS, I WISH TO YOU,  
BECAUSE OUT THERE ITS A .....  
-----ZOO-----

DEDICATED TO ALL THE SYSOPS & THE  
STUFF WE PUT UP WITH!!!!!!!!!!!!!!

Chuck 'the BBS' Fowler



## LOOKING BACK, LOOKING FORWARD

Let's see. 11 June 1980 Atari saved me from buying an Apple. My Atari 800 was followed by a list of stuff that should have kept Atari in business for a long time. Still have 3 Atari computers alive and well at home. My son learned to read music via the Music Composer Cartridge and is now a good high school musician. The Atari's are not collecting dust yet.

Quit my job and went to Alaska for the summer and West Virginia for the fall. Finally got around to the Jan 86 Atari club meeting. Surprise! The place was so packed there was standing room only. There were Atari 520 ST's with Casio music synthesizers attached. I mean, wow. Alaska wasn't like this. (There weren't any mosquitoes at the meeting, thank heavens.) Those 520's sure look good. What now?

Saw an ad for Atari 800's for \$70. and Atari 400's for \$30. I did buy 2 Atari 800 XL's at Fedco for \$60. But \$30. for a 400? What can you do with a 400? To start out with, I think I will buy 10 of them. My wife will think I am crazy but if I hide them in the attic, she won't catch me. When she observes we seem to have a lot of 400's around the house I'll just play dumb. "Oh, we've had these for a long time." Besides, when I take them out of their cases, she doesn't know what they are. It's worked before.

But really, what can you do with a 400? Well, I did hook one up to my rowing machine. It counts strokes, provides audio feedback on rowing pace and times the exercise. Man, who can do 250 strokes in the shortest time? Half the neighborhood has been over here for the stroking contests. What a blast. Not a bad job for a \$30. Atari 400. I have a list a mile long for Atari 400 level jobs. How about a home weather station which collects data on solar radiation, waters the tomatoes in the summer, tracks the temperature in every room in the house or controls the temperature in the house? How about a home security system that monitors everything and also records how many

times the kids slam the front door? I could get an Atari 400 to feed my dogs. 400's make great electronic calculators (no disk or anything). How about a two computer blind chess game with a 400 acting as the controller for the second live human player?

The list just keeps growing. Maybe I should buy 20 of those 400's just to make sure I have enough parts? At \$30. each, you can't beat it. The electronics are worth it. Maybe we should have a SIG in the club where only 16K Atari 400's are allowed? We could unite and take over the world. Where computers are concerned, it's how you use them that counts.

Well, now what? Someone asked me at the club meeting if I bought my 520 ST yet. Not yet. Am I going to buy one? Actually, I need at least two (color and monochrome). With two 520 ST's I will be uncontrollable. To start with, I need to keep track of all those 400's. (Actually, that's good job for another 400. See what I mean?) The only reason I don't have a 520 yet is I can't afford one. Spent all my money on 400's you see. But the day will come when I can buy those two 520 ST's (Putting one in the attic for awhile of course).

The future looks great and I think it has the name Atari in it. The Atari club looks great and for those who participate, there is a lot of fun and learning to come yet. Those 520's are fire breathing dragons, but we still can do a lot with those older machines.

I am looking forward to it.

< Ron Miller >



## EASY DRAW A REVIEW

After laying down alot of green paper, to buy my ST, I thought it might be novel to buy some software that would allow me to do something more then write great novels (word processing), authoring the worlds greatest program (programing), or calling every information service/BBS in the civilized world (COSTLY). Scince I was involved, at the time, in drawing electronic plans and instructions for the railroad club I belong to, a drawing program seemed to be in order. After looking at what was available, I settled with EASY-DRAW from the Migraph Inc. people. The program allows you to generate circles, arcs, squares, rectangles, and assorted other shapes with great ease. Placement is aided by the use of a scale ruler and adjustable grids and a second graphics window can be brought in for you to hone your own shape to perfection, before placing it on your primary work. The program also gives you forty patterns (to use as fill), six different line types, four line widths, four to 16 colors (depending on the RES setting), text type and size, zoom capabilities (enlarge certain defined areas), and choice of paper sizes.

While Easy-Draw has a lot of positives going for it, it also has a few negatives. When a drawing is done in any other size than 8 1/2 X 11, the printer will spit out extra paper. Case in point, I used the 8 1/2 X 14 size for a track plan. The printer started printing four inches from the top margin (I had set it to start at the 'tear' line), skipped the 'perforation' that I told the program AND the printer to ignore, printed the rest of the copy, then

line-fed one whole sheet of blank paper. I called Migraph and asked about this little problem and was informed that it was part of the OUTPUT.PGM file which handles the printer. When I asked when the might rewrite this little fo-pah they replied "NOT UNTILL WE HEAR OTHER PEOPLE COMPLAIN ABOUT IT" Does this give you a hint as to what to do about this? On a scale of 1 to 10 I would go 7.

## OMEGA TERMINAL Another PRE-REVIEW

After slaving away at a 'communications package' that was both costly(\$91) and confusing (150 pages written by a politician) it was refreshing to stumble onto this terminal program. OMEGA TERMINAL is written by the crazy folks at Supra Corp. Crazy, in fact, because they write instructions that you can understand. It took me four days to figure out the 'other' package and only fifteen minutes to read through the twenty-three page manual, install my numbers, autodial a few services, and up-load some files.

It is rare to see such a handy program filled with all kinds of extra features such as using the pull down menus, on-line clock, 'snap-shot' of screen feature, phone number directory, auto-dial (up to 10 times), allows different protocols for each phone number, autoanswer, and direct printing of everything (except when up/down loading). And the clincher is that all of this is available for (are you sitting down?) \$29.95 (Compu-phone). Besides being available for the ST, it can also be had for the 8-bit folks(I'm one too).

REVIEWS & PRE-VIEWS by  
Chuck 'THE BBS' Fowler



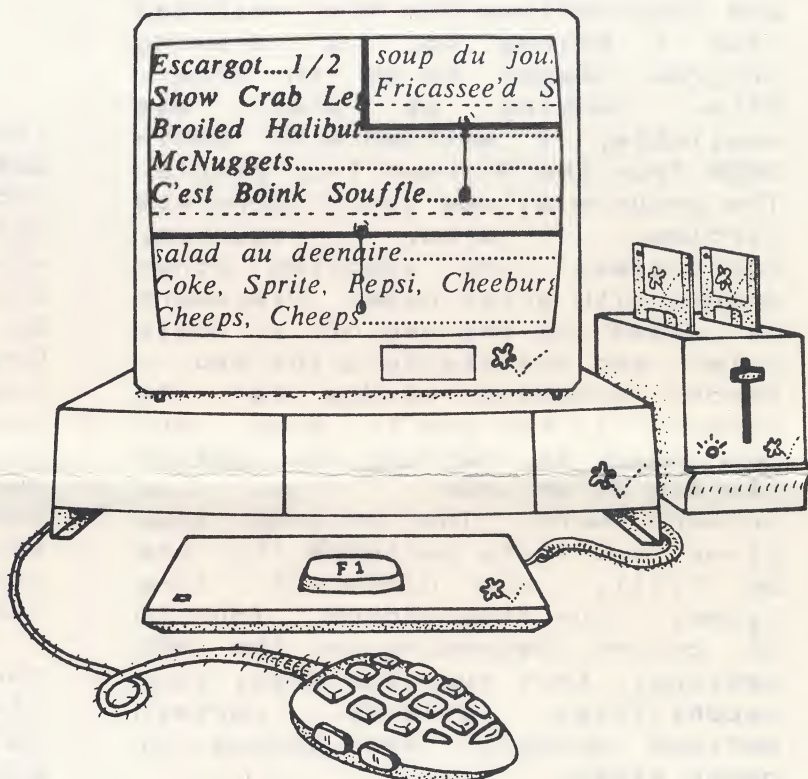
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IN THE WORST WAY... Consider the new

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- o Pull/Plop-down menus
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- o Real-Time Pixels
- o Breakfast Serial Interface
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- o MINNIE Interface
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  - 130 after a jog around the block
- o Bi-Directional Greyhound Bus
- o 99% ENIAC Compatible
- o Disk Breaks
- o Patented Rotating Head Dual Outboard Quad-Density 4.5" Disk Drive
- o Automatic Read-Protection
- o Typographically Sensitive Keyboard
- o Programmable Function Key
- o Dvorak Mouse



Bungled Software

- o Invisicalc Database
- o Alfred E. Neuman Spreadsheet
- o Creative Bookkeeper
- o Rubber Check Personal Finance Software
- o DORK I, II, III and Suspenders by INFOcon
- o WheezinART Word Processor with built-in hyphenator

Benchmarks

Erostosthenes Sieve: 2.3 hrs  
Bouncing Ball: 1.6 min

**\$209900**

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Here's what the experts had to say:

"It'll be a sure-fire HIT!"

Larry Tribble, President,  
Mindset Corporation

"Gotta be the most neatest, awesome, boss, tubular, trick piece of machinery around today."

Adam Osborne

"A very powerful product; and at those prices, Amoeba will be around for a long time."

Clive Sinclair

"All you need is great graphics!"

Mike Zuwelb, owner,  
"The Amoeba Store"  
(formerly "The Spectra-Video Store")



## SECRETS OF FIRST WORD PRINTER DRIVERS

By

Philip S. Gallo Jr.

Having just purchased a Citizen MSP-20 printer, I needed a printer driver to access all of the functions of *FIRST WORD*. Since the Citizen is supposed to emulate an Epson FX 80 it immediately occurred to me that all I had to do was to activate the FX 80 NLQ codes which had been commented out of the RX 80 driver that comes with *FIRST WORD*. I did so, ran the *INSTALL* program, and copied the driver out to my desktop. Then I wrote a little test program, incorporating all of the font style features singly, and in combination, and printed it out both in draft and in NLQ mode.

The results were disappointing, to say the least. In draft mode, everything worked perfectly. The same was not true in NLQ mode. Underlining worked, but bold was no different than regular NLQ, whether used alone or in combination with underline. Italics printed in draft mode, even though I had specified NLQ, and bold italics were really emphasized draft quality. Subscript and superscript also were in draft mode.

Twelve frustrating hours, and 28 printer drivers later, I emerged with a Printer driver that supported every feature of the Citizen, and even left me with one "wild card" - the light mode - that I could define any way I wanted to. In the process, I think I learned something about the structure of the Printer Drivers. If you need to construct a driver, or the one you are using doesn't support all of the features of your printer, perhaps what I have learned will help you out.

If your printer supports italics, underline, and bold in NLQ mode, these tips should work. If the printer has a switch controlled NLQ mode, don't use it. Set the printer in draft mode, and use the NLQ option in the print menu contained in *FIRST WORD* to call out NLQ. Some printers can't do italics or bold in NLQ mode, and starting out in draft and using software control of NLQ gives you the option of still using italics and bold in your printing, even if it is in the draft font. However, I knew the Citizen supported all of the functions of *FIRST WORD* in NLQ and I wanted a driver that could access them.

Although I was not able to look at the source code in the driver installation program (and wouldn't know what I was seeing if I had been able to), my endless hours of trial and error convinced me that there is a bug in the program, which causes the driver to look in the wrong place whenever bold print is combined with some other function, such as underline or italics, or both. Even though you have selected NLQ mode, the driver apparently looks at the code for bold draft print in these cases, rather than at bold NLQ print. The RX80 driver defines draft bold as emphasized print, and the hex control codes given are 1B, 45. However, most



printers don't support emphasized mode in NLQ. Rather, bold is obtained by double striking. Since NLQ is already a double strike mode, bold really consists of four passes with the print head. So instead of 1B, 45 as the codes for draft bold, put in 1B, 47 to start it, and 1B, 48 to turn it off. The Citizen uses the hex codes 1B, 78, 1 to go into NLQ mode, so I defined NLQ bold as 1B, 78, 1, 1B, 47, and turned it off with 1B, 48, 1B, 78, 1.

The second secret seems to be turning on NLQ mode each time you define an NLQ command, and turning it back on again when you issue the command to turn off the feature. For example, the code to turn on NLQ underline would be 1B, 78, 1, (turn on NLQ on the Citizen) 1B, 2D, 1 (turn on underline). To turn it off - 1B, 2D, 0, 1B, 78, 1. The last three codes reinstate NLQ for the next function. When you select bold underline, the driver goes to the bold draft command and picks up the double strike command, then picks up the NLQ command, and finally the underline command. When you turn it off, it cancels double strike, cancels underline, and again sends an NLQ command so that the next function chosen (or just plain typing) will be in NLQ mode. It sounds confusing and redundant, but it was the only thing that worked for me on all functions, including subscripting and superscripting. There is probably an easier way to do it, but I know that this way works.

The "wild card" is NLQ light. By putting in 1B, 78, 0 to turn it on, and 1B, 78, 1 to turn it off, you will actually have a light mode which is single pass draft mode. All you are doing is cancelling NLQ mode, and then reinstating it. Or, you could make light a super dark emphasized font by 1B, 78, 0, 1B, 45, 1B, 47. That sequence would turn off NLQ and put you in emphasized double strike draft, which is super dark. To turn it off, put in 1B, 46, 1B, 48, 1B, 78, 1. That sequence cancels emphasize and double strike, and puts you back in standard NLQ. You could also make your wild card double wide, emphasized double wide, condensed, etc.

Finally, if you have a printer like the Okidata 192 which only supports underline in NLQ mode, you can still access such things as bold and italics by putting in the code to turn off NLQ mode and then putting in the proper codes for the draft mode. The printer will temporarily jump out of NLQ, execute the function, and then jump back in if you reinstate NLQ mode in the line that terminates the function.



## THE NEW USER

"THE NEW USER" will be a monthly column dedicated to (what else) the new user. We realize that many of our new members may be wondering what to do with these Atari computers. Hopefully, we will be able to offer some tips and programs that you will wish to place into your libraries.

You probably now have many BASIC programs on several disks. You find yourself booting up a disk, maybe going to DOS to see what is on it, going back to BASIC and type RUN "D:GAME.BAS". Well, that is fine and good, but... Wouldn't it be nicer to have a menu of your programs boot up automatically, then simply select wish program you want to RUN? Sure it would!

To this end, we present the following type in programs. The first will create an AUTORUN.SYS file which will allow you to automatically RUN another file, say MENU. The second listing is the menu program which will list your files. By pressing one key, you will be able to RUN a particular BASIC program.

In the listings of both files, you will notice special characters. Press your [LOGO] or [INVERSE] key to have you lettering be inversed. Other special characters are obtained in the following way:

► = [ESC],[TAB]  
◄ = [ESC],[CTRL + TAB]  
↵ = [ESC],[CTRL + CLR]  
↓ = [ESC],[CTRL + =]  
⇨ = [ESC],[SHIFT + TAB]  
⇩ = [ESC],[SHIFT + DELETE]  
↑ = [ESC],[CTRL + -]

```
10 GRAPHICS 0: DIM C$(20), N$(12): ? "UTTI
LITY TO AUTORUN ANY BASIC PROGRAM
USING ANY VERSION OF DOS IT↑↑"
20 ? "THIS PROGRAM CREATES AN AUTORUN
FILE ON DISK WHICH WILL AUTOMATICALLY
RUN ENTERED PROGRAM ON SYSTEM ";
30 ? "POWER-UP": ? "↓EXAMPLE: BY ENTER
ING FILENAME MAN, A FILE NAMED AUTOR
UN.SYS IS CREATED WHICH RUNS BAS ";
40 ? "FILE MAN ON POWER-UP": ? "↓ENTER
FILENAME";: INPUT N$: POKE 752, 1: C$="RU
N D:": C$(4,4)=CHR$(34): C$(7)=N$
50 C$(LEN(C$)+1)=CHR$(34): C$(LEN(C$)+1
)=CHR$(155): L=LEN(C$): OPEN #1,8,0,"D:A
UTORUN.SYS": FOR I=1 TO 66: READ X
60 IF I=5 OR I=48 THEN X=X+L
70 PUT #1,X: NEXT I: FOR I=1 TO L: PUT #1
,ASC(C$(I,I)): NEXT I: FOR I=1 TO 12: REA
D X: PUT #1,X: NEXT I: CLOSE #1
80 ? "↓CONTINUE (Y/N)":: INPUT C$: IF C
$="Y" THEN RUN
90 RUN "D:A"
100 DATA 255,255,0,6,59,6,173,31,208,4
1,4,240,10,169,18,141,33,3,169,6,141,3
4,3,96,251,243,51,246,33,6,163,246,51
110 DATA 246,60,246,76,228,243,0,238,3
3,6,172,33,6,192,0,208,10,169,0,141,33
,3,169,228,141,34,3,185,59,6,160,1,96
120 DATA 226,2,227,2,0,6,224,2,225,2,1
7,6
```



```

0 REM MEET WALL: THE FASTEST (EASIEST)
  LOADER (/RUNNER) IN THE WEST-Ace John
  Peters (415) 239-5393 DOM Librarian
1 REM Modified by Leo M. Deegan of San
  Diego, Ca. 92109 on 14 APR 86
2 REM Use BUILD2AR to write AUTORUNSYS
  for "A" and write DOS II to disk. "A"
  will then auto-boot. HIT 0 FOR DOS
3 REM CONT: Delete DUP.SYS to save 42
  sectors. TO RETURN TO MENU FROM ANY
  PROGRAM ON THIS DISK, HIT SYS/RESET
4 REM LINE 10: *.* TO * DROPS EXTENDED
  FILENAMES FROM MENU--LINE 20: STMT 2
  DROPS 555 FILENAMES FROM MENU
10 GRAPHICS 0:POKE 82,2:POKE 580,1:POKE
  752,1:DIM A$(20),F$(20),N$(800):OPEN
  #1,6,0,"D:*.*":TRAP 30
20 INPUT #1,F$:ON F$(11,13)="SYS" GOTO
  20:N$(LEN(N$)+1)=F$(3,13):GOTO 20
30 CLOSE #1:FOR I=1 TO 16:A$(I)=CHR$(A
  SC(F$(I,I))+128):? ">":NEXT I:X=LEN(N
  $)/11:Y=X:IF X>37 THEN X=36
40 R=RND(8)*16:SETCOLOR 4,R,4:POKE 709
  ,2:POKE 710,10:? ">+QUICK MENU RUN WALL
  OR HIT SYS/RESET+"
50 Z=INT(X/2):T=Z-A:FOR I=A+1 TO Z:FOR
  J=I TO T+I STEP T:ON J=Y GOTO 80:IF J
  <10 THEN ? " ";
60 ? J;" ";N$(J*11-10,J*11);">":NEXT
  J:NEXT I:IF X<>36 THEN ? ">":GOTO 80
70 ? ">+HIT RETURN":OPEN #1,4,0,"K:":GE
  T #1,K:CLOSE #1:POSITION 2,3:FOR I=1 T
  O 20:? ">":NEXT I:A=36:X=X+Y:GOTO 50
80 ? A$
90 TRAP 90:POSITION 2,22:? ">NUMBER":;
  SOUND 1,20,10,9:FOR I=1 TO 75:NEXT I:5
  OUND 1,0,0,0:INPUT N:IF N=0 THEN DOS
100 ON N>Y-1 GOTO 90:F$="D:":A$=N$(N*1
  1-10,N*11):FOR I=1 TO 11:IF A$(I,I)<>"
  " THEN F$(LEN(F$)+1)=A$(I,I)
110 IF I=8 AND A$(9,9)<>" " THEN F$(LE
  N(F$)+1)=". "
120 NEXT I:TRAP 130:A$=F$(3):? ">+LOAD
NE ";A$:RUN F$
130 ? ">+END IT RUN ";A$:FOR I=1 TO 999:
  NEXT I:GOTO 90

```



## ATARIWRITER PLUS' MINUSES

ATARIWRITER PLUS is, for the most part, an improvement on an already excellent product, ATARIWRITER. The ability to display the disk contents in either of two disk drives is the first, most notable improvement I saw. When you CREATE a document, you are presented with a clear screen; the formatting is accomplished after the text is completed, using the GLOBAL FORMAT option. The GLOBAL FORMAT option also permits the creation of two-column printout without having the printer back-up the paper to print the second column. Great for those with other than ATARI printers. Bells and whistles are more numerous throughout the program.

There are, however, a few shortcomings, some major. First is the handling of the formatting displays. In ATARIWRITER, when you entered a control code for formatting, it was displayed on the screen in inverse video - easy to see and locate for "debugging". In ATARIWRITER PLUS, the character set is redefined to look like an optical character reader character. Unfortunately, this does not stand out from the rest of the text. The major problem I have encountered is in formatting. ATARIWRITER PLUS has two MAJOR bugs in this area. First, when using the "CTRL-C, CTRL-C" option to align a block of text with the right hand margin, multiple lines of text are not evenly aligned. When I wanted this:

1234 Oak Avenue  
San Diego, CA 92111  
May 32, 1895

What I got was this:

1234 Oak Avenue  
San Diego, CA 92111  
May 32, 1895

A similar problem arose when printing other than a complete text file. I had a three-page document, and needed only the third page printed. I entered the PRINT option, and replied "YES" to "Print to Printer". I replied "NO" to the query "Print Entire Document", and directed it to print Page 3 as the first and last page. All went fine, except that the first line of the printed page was oriented two characters to the left of where it should have been. The only way to remedy the situation was to have the entire file (three pages) printed. A most annoying "bug".

Has anyone else had any experiences, positive or negative, with this product which they would like to pass along? The newsletter editor would welcome your input.

- Buck Bragunier



## What's Inside the Atari 1050 (and the US Doubler)

by Jeff Reid, ACAOC

This article explains a bit of the the inner workings of the Atari 1050 and Atari's orphaned "enhanced" density.

The 1050 is an Atari 5 1/4 inch floppy disk drive. It performs all of the necessary functions to support Atari DOS (disk operating system) functions: reading, writing, formatting, and so on. It is an intelligent controller as are all Atari peripherals; the Atari computer sends simple commands to the 1050, which in turn performs the necessary steps. This requires a little "computer" inside the 1050.

The 1050 "computer" is made up of five chips: 6507--a microprocessor; 6810--128 bytes of random access memory (RAM); 6532--128 bytes of RAM, input/output (I/O) ports; 4132--4K bytes read only memory (ROM), the 1050 software; 2793--floppy disk controller. There is also the actual floppy drive mechanism itself and some smaller component chips used to allow the five big chips to communicate with each other, the floppy drive, and the Atari.

The 6507 is similar to the 6502 microprocessor used in the Atari, but with fewer address lines. The 2793 is similar to the controller chip used in the ATR8000 and is Western Digital's top of the line floppy disk controller chip. It is capable of driving 5 1/4 or 8 inch floppy drives, single or double density, and single or double sided.

So why doesn't the 1050 support true double density? Well, the problem is memory, or actually, lack of it. There are only 256 bytes of memory, some of which is needed for program control. This limits the 1050 to 128 byte sectors and is OK for single density. However, double density sectors are normally 256 (or more) bytes long. Atari's answer to this problem is enhanced density. Enhanced density actually uses the double density recording technique but only 128 byte sectors are implemented. This ends up producing 26 sectors per track, or over 133,000 bytes of storage.

It makes you wonder why Atari used an

expensive floppy controller chip and then didn't give it enough memory to support double density. Well, somebody else did. You can enhance your 1050 with an upgrade like the US Doubler and get true double density.

### *The US Doubler*

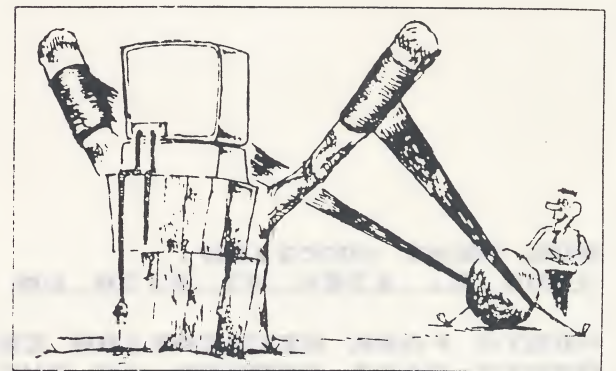
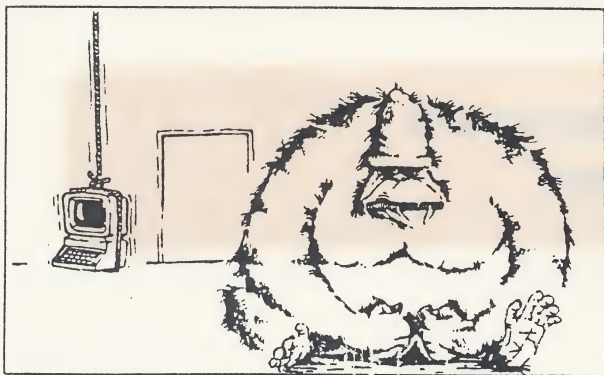
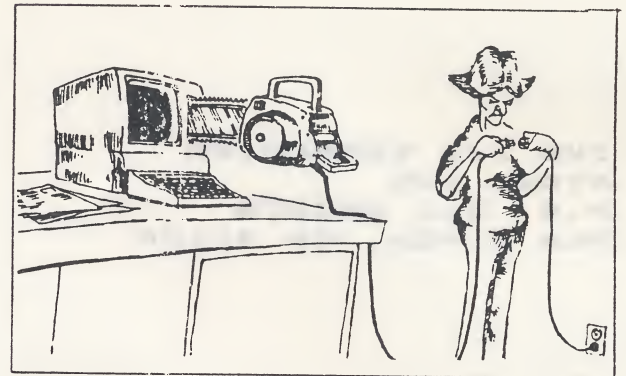
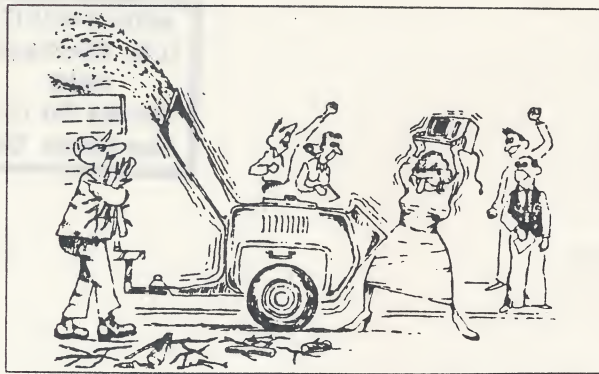
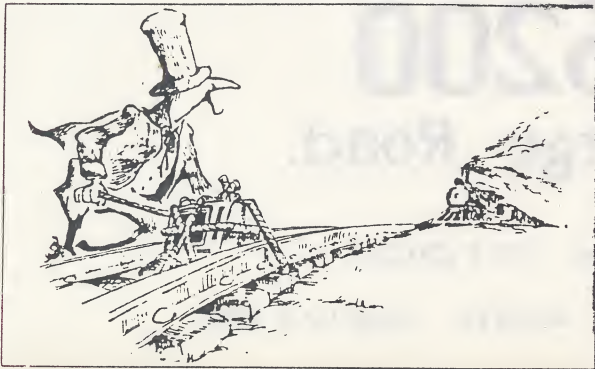
The US Doubler, available for around \$60.00, adds another 128 bytes of RAM memory and a new software ROM chip. These modifications support true double density with 256 byte sectors. In addition, the drive can communicate with the Atari computer about three times faster than normal.

Included with the US Doubler 1050 enhancement is Sparta DOS, a totally new operating system for the Atari. This new operating system is similar to MS-DOS as used on the IBM PC. The main features are date and time support, including file date/time stamping, and tree structured directories. Since the directory structure is not like the Atari DOS standard, a special copy utility is provided that will transfer files to/from Sparta DOS from/to Atari DOS type diskettes.

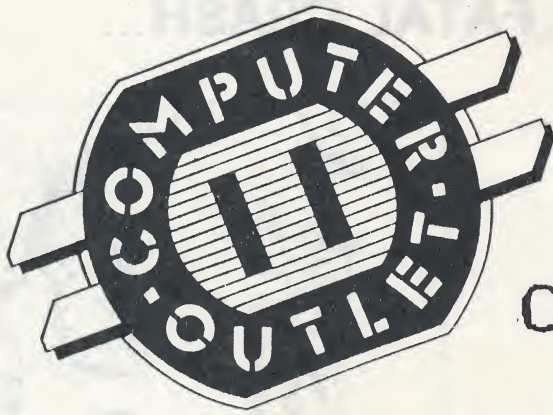
Sparta DOS also takes advantage of the US Doubler speed enhancement by utilizing a more efficient "interleave.". Interleave describes the physical ordering of the sectors on each track of a diskette; an interleave of 17 means that the sectors are arranged so that sector two is located 17 sectors past sector one, sector three is 17 past sector two, and so on, so that each higher numbered sector is the 17th sector from the current one. Another way to look at this is to realize that if all the sectors on a track are read in order, the number of revolutions required to read the track is the same as the interleave. For example, since the 1050 spins at 288 rpm, it takes 3.54 seconds to read a track with a interleave of 17, and 1.46 seconds with an interleave of seven. The normal 1050 uses an interleave of 17, although it is capable of using an interleave of 16. The high speed US Doubler mode uses an interleave of seven, about 2.4 times faster than a normal Atari 1050.



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